



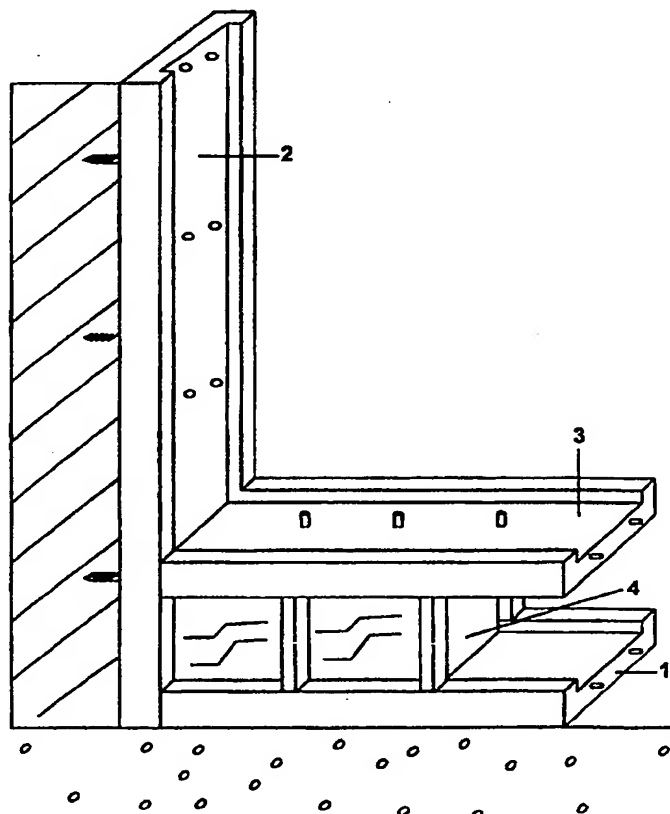
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/BR96/00034 (22) International Filing Date: 2 August 1996 (02.08.96) (30) Priority Data: MU 7501821-7 3 August 1995 (03.08.95) BR (71)(72) Applicant and Inventor: COUTO, Fernando, Pazzini [BR/BR]; Rua dos Pampas, 162, 30410-580-Belo Horizonte, MG (BR). (74) Agent: DOS SANTOS LINHARES, Carlos, José; Rua Parafba, 330, SL/ 1011, 30130-917-Belo Horizonte, MG (BR).		(81) Designated States: US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  Published With international search report.

(54) Title: MODULE-BASED STRUCTURES FOR GLASS BLOCKS

## (57) Abstract

The present application refers to a structure consisting of modules that fit into each other, and which can be used for constructing glass block walls that can be removed or remodeled with total recycling of the material.



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## MODULE-BASED STRUCTURES FOR GLASS BLOCKS

Glass blocks are commonly used in the construction of walls, counters and other structures, functioning as room dividers, means of light filtering and ornamentation.

The majority of the structures with glass blocks found today are fixed in place and put together by means of cement or other adhesives that bind the blocks in such a way that they cannot be remodeled or removed without breakage, leading to substantial loss of the material.

One solution found to this problem was to build wooden crates into which the blocks could be fitted and fixed using rubber. This method, however, is not viable, since the blocks can be easily removed, and it is therefore impractical for use in outside walls.

The model of module-based structures, the object of this application, is presented as a solution to both problems, making it possible to construct totally-secure glass walls that can be removed or remodeled allowing for total recycling of the material.

The model is illustrated in the figures, which represent:

Figure 1 - view of the horizontal and vertical guide-rails already in place

Figure 2 - view of a horizontal separator

Figure 3 - view of a vertical separator

Figure 4 - view of the horizontal and vertical frames

Figure 5 - view of a structure being assembled

Figure 6 - front view of an assembled wall (regular form)

Figure 7 - front view of an assembled wall (irregular form)

The numbers in the figures and in this report refer to the following components:

1. horizontal guide-rail
2. vertical guide-rail

3. horizontal separator

4. vertical separator

5. horizontal frame

6. vertical frame

5

7. risers

8. tenons

9. mortises

10. alettes

As can be seen in the figures, the model presented in this report consists basically of three types of components that when combined allow for the construction of glass walls of several configurations: guide-rails (1 and 2), separators (3 and 4), and frames (5 and 6). These components can be made of wood, metal or any other suitable material and coated with varnish, paint and other substances, each one resulting in a distinct esthetic effect.

The guide-rails (1 and 2) constitute the fixed part of the structure. They are made of wooden boards or metal plates with risers (7) at the edges of one of the faces. The horizontal guide-rail (1), which is screwed to the floor, has tenons (8) along its superior face and on each one of the sides. The vertical guide-rail (2), screwed to the wall, has two columns of mortises (9).

The separators (3 and 4) are the pieces that divide the rows of glass blocks. The horizontal and vertical separators have different formats. The horizontal separators (3) are long boards or plates with risers (7) on both faces and tenons (8) on both faces and on the sides. The vertical separators (4) are small boards or plates with lateral alettes (10). The alettes (10) and the risers (7) of the other pieces are different because the former do not cover the whole extension of the piece, while the latter do. The vertical separators (4) have also mortises (9) on both their superior and inferior faces.

The frames (5 and 6) are the finishing pieces of the set. Their shape is identical to the shape of the guide-rails (1 and 2), and are distinguished from these by not being screwed to the wall or the floor, which makes their external face visible.

The assembly of the structure is carried out by fitting the tenons (8) of the horizontal pieces into the mortises (9) of the vertical pieces, following the steps as shown:

1. fastening of the vertical guide-rail (2) to the wall, pillar or  
5 beam, using screws.
2. fitting of the horizontal guide-rail (1) into the vertical guide-rail (2).
3. fastening of the horizontal guide-rail (1) to the floor, using screws.
- 10 4. placing of a glass block into the space between the guide-rails.
5. placing of a vertical separator (4) beside the glass block, fitting it into the horizontal guide-rail (1).
6. repetition of the process of intercalating glass blocks and  
15 vertical separators (4) until a row is completed.
7. placing of a horizontal separator (3) on the row, fitting it into the vertical guide-rail (2) and into the vertical separators (4).
8. repetition of sequences 6 and 7 until the assembly of the last row.
- 20 9. placing of the vertical frame (6), fitting it into the horizontal guide-rail (1) and horizontal separators (3).
10. placing of the horizontal frame (5), fitting it into the vertical guide-rail (2), vertical separators (4), and vertical frame (6).

Walls with irregular contours can be created by means of using a  
25 different number of glass blocks in each row, as shown in Figure 7. In order to do so, several frames of smaller length must be used.

A wall constructed with this model offers total security, since the risers (7) and alettes (10) prevent the glass blocks from being removed.

Besides offering security, the main advantage of this model is the  
30 possibility of removal and remodeling of a wall with no loss of material. All that has to be done is disassemble the set following the steps in reverse. Both the components of

the structure (guide-rails, separators and frames) and the glass blocks can be transported, stored and recycled in the construction of new walls.

Although the procedures described above seem to be the ideal ones, modifications can be introduced without changing the nature of the patent, with the  
5 replacement of one or more components by others with the same technical function.

Despite the fact that the model of module-based structures presented in this report was originally designed to be used with glass blocks, its use can be extended to walls constructed with blocks of any other material.

### CLAIMS

1) MODULE-BASED STRUCTURES FOR GLASS BLOCKS for construction of glass block walls that can be removed or remodeled with total recycling of the material, essentially characterized by having guide-rails (1 and 2) 5 screwed to the wall and to the floor, separators (3 and 4) between the blocks, and external frames (5 and 6), fastened to each other by means of a fitting system.

2) MODULE-BASED STRUCTURES FOR GLASS BLOCKS, according to claim number 1, characterized by a fitting system that consists of tenons (8) in the horizontal pieces and mortises (9) in the vertical pieces.

10 3) MODULE-BASED STRUCTURES FOR GLASS BLOCKS, according to claim number 1, characterized by having guide-rails (1 and 2) made of wooden boards or metal plates with risers (7) at the edges of one of the faces. The horizontal guide-rail (1) has tenons (8) along its superior face and on each of the sides, and the vertical guide-rail (2) has two columns of mortises (9).

15 4) MODULE-BASED STRUCTURES FOR GLASS BLOCKS, according to claim number 1, characterized by having horizontal separators (3) made of boards or long plates with risers (7) on both faces and tenons (8) on both faces and on the sides, and vertical separators (4) made of small boards or plates with lateral alettes (10) and mortises (9) on their superior and inferior faces.

20 5) MODULE-BASED STRUCTURES FOR GLASS BLOCKS, according to claim number 1, characterized by having frames identical in shape to the guide-rails (1 and 2), these being distinguished by not being screwed to the wall or to the floor, making their external face visible

1/6

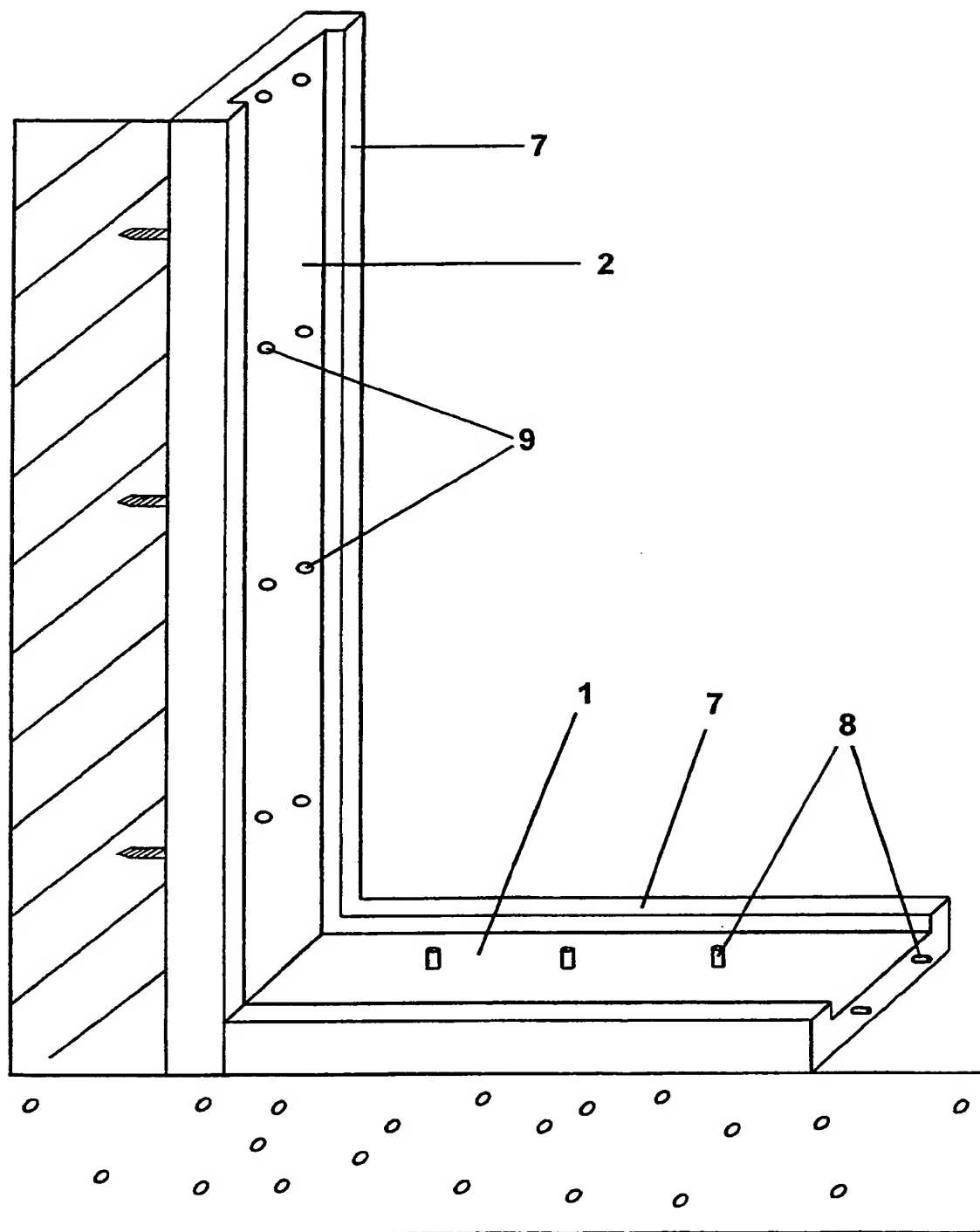


FIG. 1



2/6

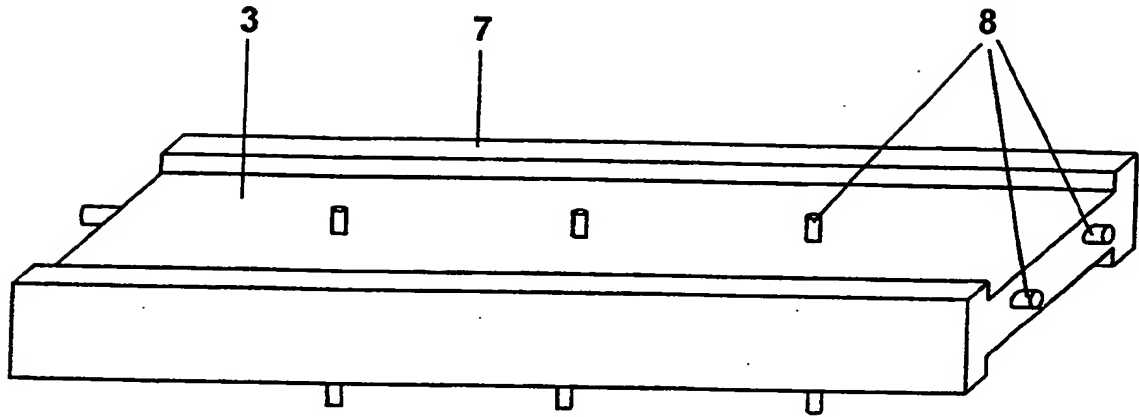


FIG. 2

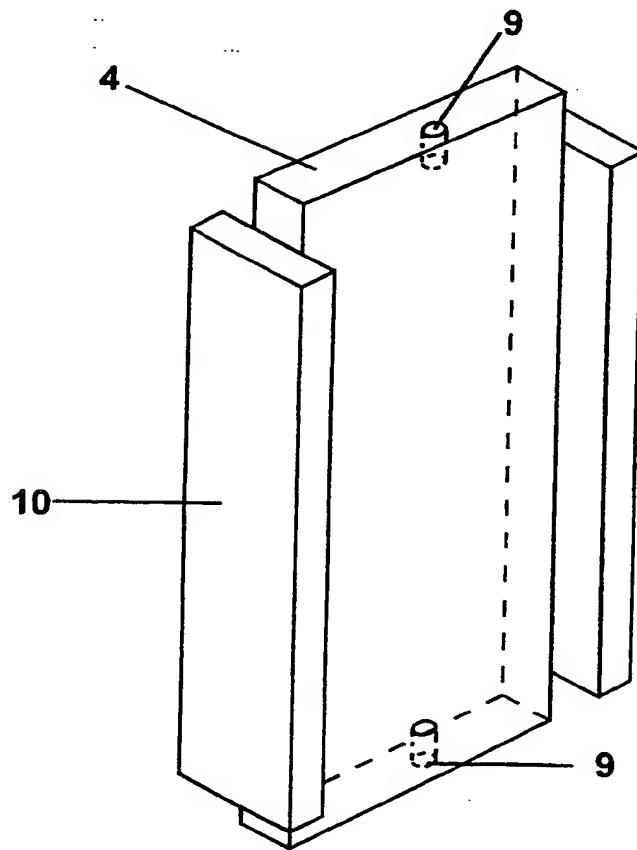


FIG. 3

3/6

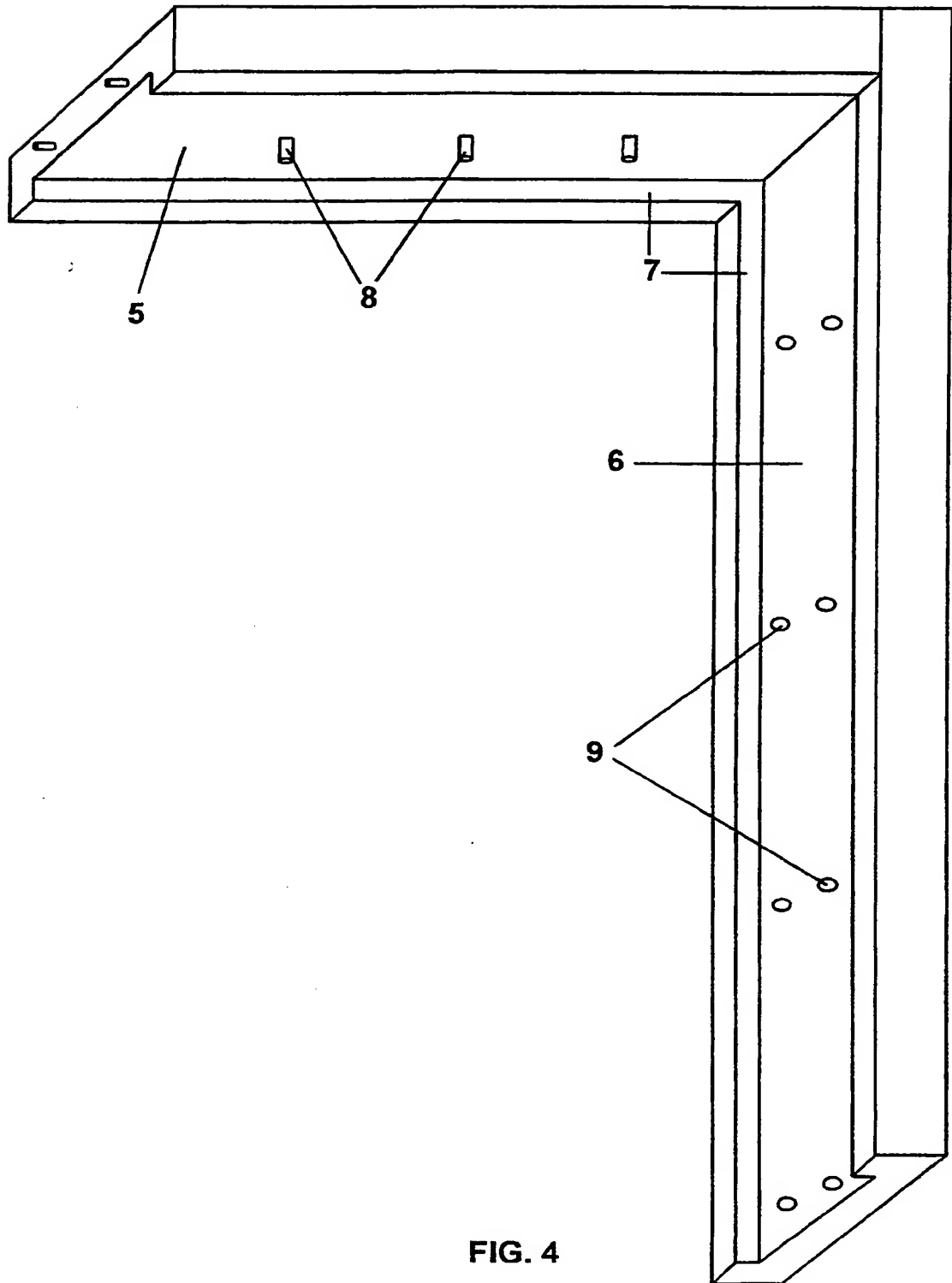


FIG. 4

4/6

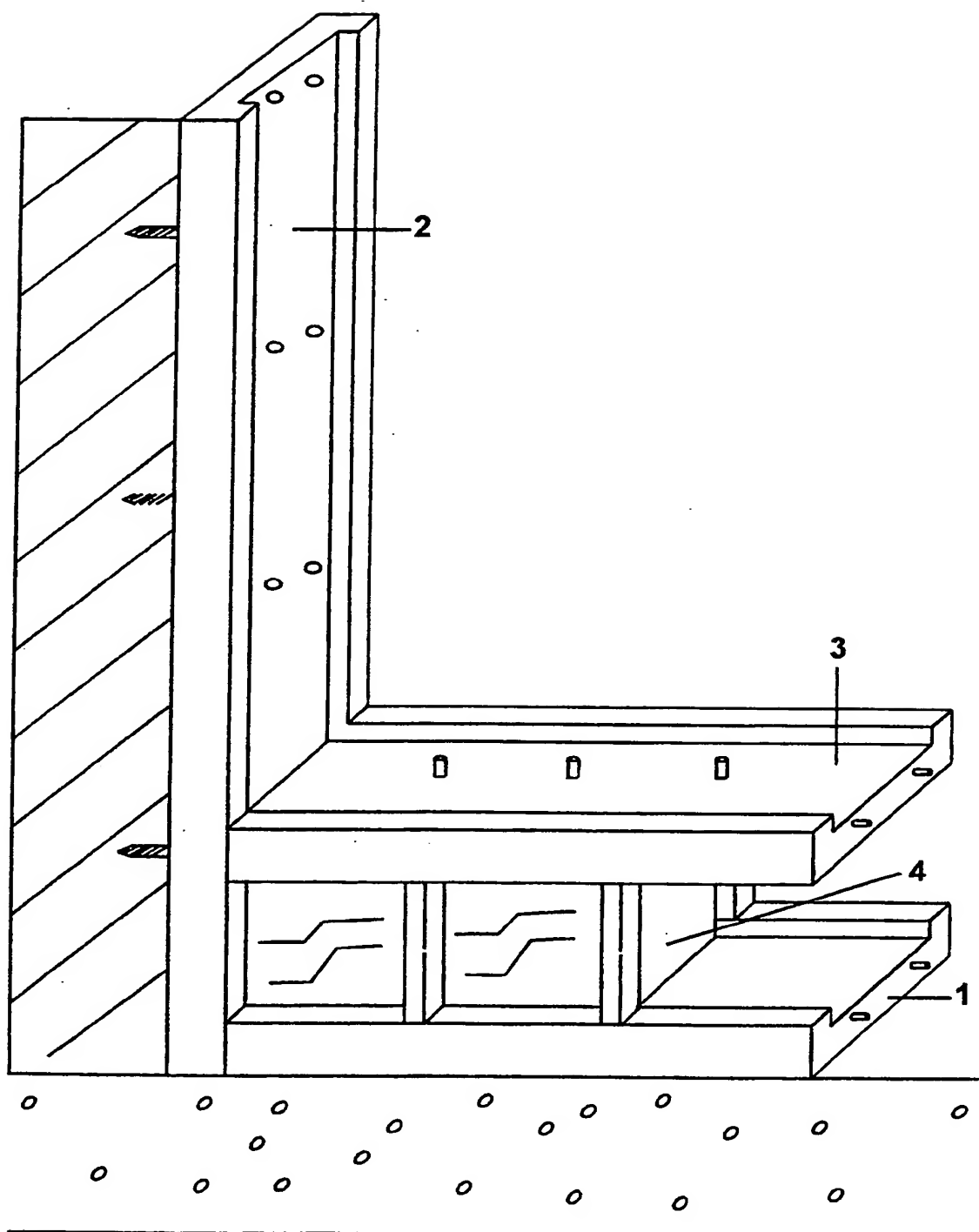


FIG. 5

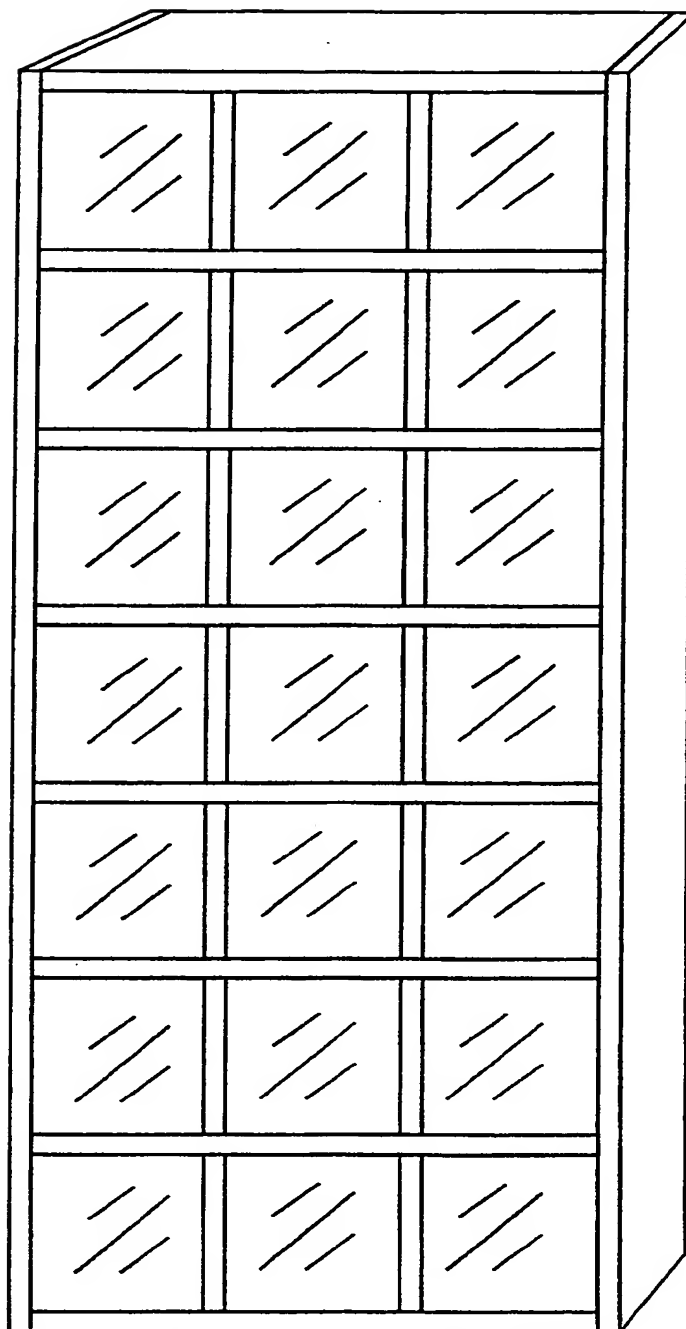


FIG. 6

6/6

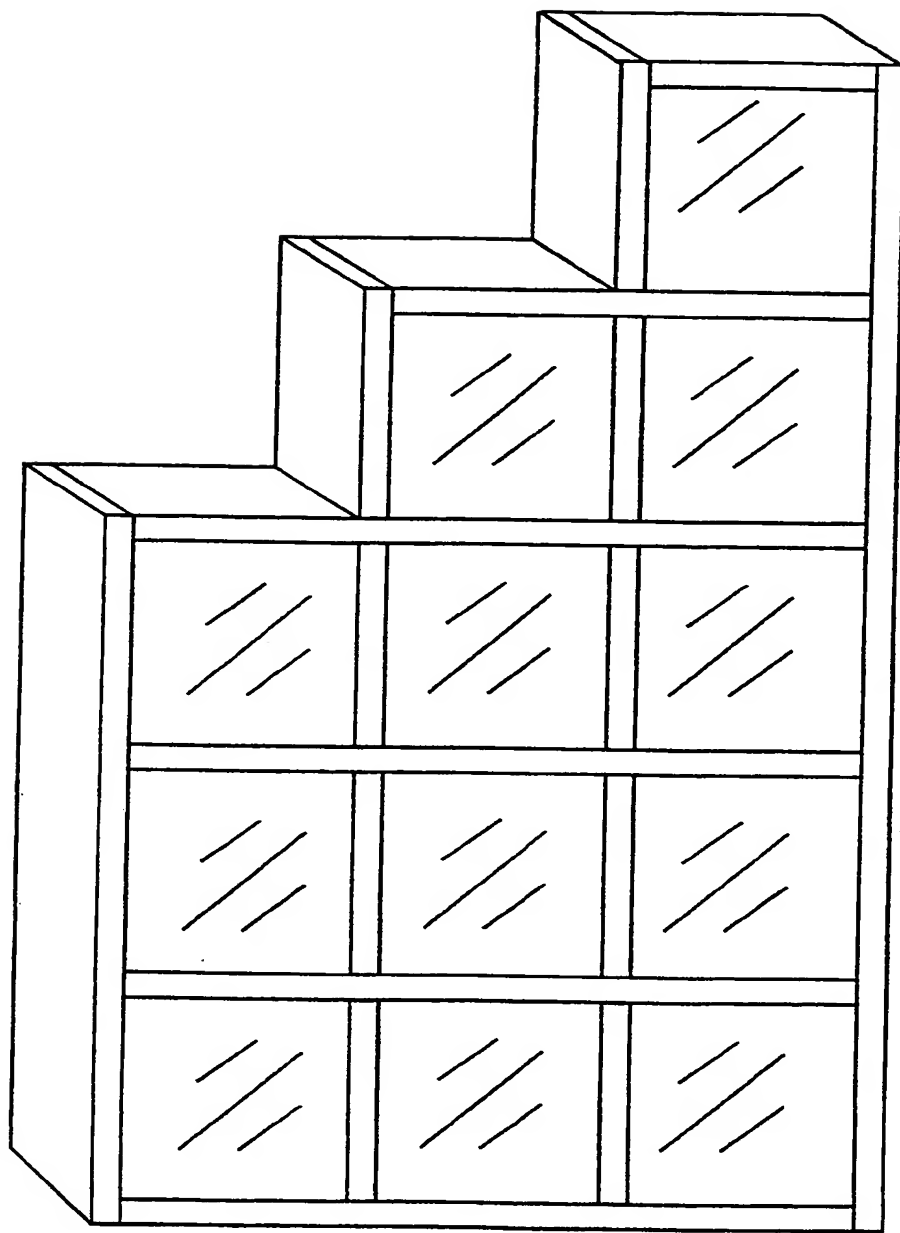


FIG. 7

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/BR 96/00034

## A. CLASSIFICATION OF SUBJECT MATTER

IPC<sup>6</sup>: E 04 C 1/42

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC<sup>6</sup>: E 04 B 2/00; E 04 C 1/00, 2/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 916 876 A (SCHUYLER) 17 April 1990 (17.04.90), totality.	1,3-5
A	DE 34 24 173 C1 (THALER) 07 November 1985 (07.11.85), totality.	1,3-5
A	DE 33 02 453 A1 (VEREINIGTE GLASWERKE) 26 July 1984 (26.07.84), abstract; fig.1-5. -----	1,2

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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**INTERNATIONAL SEARCH REPORT**  
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